International Conference

Photosynthesis Research for Sustainability – 2013

in honor of Jalal A.Aliyev

June 5-9, 2013
Baku, Azerbaijan

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Institute of Botany, Azerbaijan National Academy of Sciences
Elmira Maharramova
Institute of Botany, Azerbaijan National Academy of Sciences
Tarlan Mamedov
Institute of Botany, Azerbaijan National Academy of Sciences; Fraunhofer USA Center for Molecular Biotechnology

DETAILED DAILY SCIENTIFIC PROGRAMME

(Lectures, discussion, poster sessions, tours and etc.)

June 4 - ***Arrival, Registration***

June 5 (1st day) - ***Lectures, Opening ceremony, Welcome party***

10:00 - Opening ceremony

Ali Abbasov (Azerbaijan), James Barber (UK), T. Nejat Veziroglu (USA), Bruce Osborne (Ireland), Suleyman Allakhverdiev (Russia)

11:00-13:00

Special events in honor of Professor Jalal A. Aliyev

To take photos, all together

13:00-14:00 (60 min) ***Lunch***

Lectures:
Chairpersons: *James Barber (UK); Leslie Dutton (USA); Bruce Osborne (Ireland)*

14:00-15:00

John E. Walker, *The Nobel Prize in Chemistry 1997; (MRC-MBU, University of Cambridge***,** *Cambridge, UK)* **"Making the Fuel of Life"**

15:00-15:40

James Barber *(Imperial College London, London, UK)* **"From natural to artificial photosynthesis"**

15:40-16:15

Garib Murshudov *(MRC Laboratory of Molecular Biology, Cambridge, UK; Institute of Botany, Azerbaijan National Academy of Sciences, Baku, Azerbaijan)* **"Methods for macromolecular crystal structure analysis: generation and learning form of macromolecular structures"**

16:15-16:35 (20 min) ***Coffee break***

16:35-17:10

Leslie Dutton (*University of Pennsylvania, Pennsylvania, USA)* **"Prospects for man-made energy-conversion systems *in vivo*"**

17:10-17:45

Hiroshi Nishihara *(The University of Tokyo, Tokyo, Japan)* **"Photoelectron conversion systems based on PSI-molecular wire combination"**

18:00 - Welcome party

June 6 – ***Lectures and Tours***

Lectures:
Chairpersons: *James Barber (UK); Leslie Dutton (USA); Suleyman Allakhverdiev (Russia)*

9:00-9:35

Jalal A. Aliyev (*Research Institute of Crop Husbandry, Ministry of Agriculture of Republic of Azerbaijan; Institute of Botany, Azerbaijan National Academy of Sciences, Baku, Azerbaijan) "***Photosynthesis, photorespiration and productivity of wheat genotypes: new look"**

9:35-10:10

Eva-Mari Aro (*University of Turku, Finland)* **"Regulation of light harvesting and electron transfer under dynamic changes in light environment"**

10:10-10:45

Hideya Fukuzawa *(Graduate School of Biostudies, Kyoto University, Japan)* **"Modification of photosynthetic carbon utilization: Carbon-concentrating mechanism and hydrocarbon production in a green isotis *Chlamydomonas reinhardtii*"**

10:45-11:15 (30 min) ***Coffee break***

Chairpersons: *Miwa Sugiura (Japan), Eva-Mari Aro (Finland); Robert Burnap (USA)*

11:15-11:55

Jian-Ren Shen (*Okayama University, Okayama, Japan)* **"Mechanism of photosynthetic water-splitting based on high resolution structure of photosystem II"**

11:55-12:30

Johannes Messinger (*Department of Chemistry, Chemical Biological Centre, University of Umea, Umea, Sweden*) **"Mechanism of water oxidation in photosystem II"**

12:30-13:00

Hiroshi Ishikita *(Graduate School of Medicine, Kyoto University, Kyoto, Japan)* **"Mechanisms of proton transfer reactions in Photosystem II"**

13:00-14:30 (90 min) ***Lunch***

Chairpersons: *Jian-Ren Shen (Japan), Kentaro Ifuku (Japan), Yashar Feyziyev (Azerbaijan)*

14:30-15:00

Ernst-Walter Knapp (*Freie Universitat Berlin, Berlin, Germany*) **"Protonation pattern of the Mn-cluster in PSII"**

15:00 -15:30

Robert Burnap *(Department of Microbiology & Molecular Genetics, Oklahoma State University Oklahoma, USA)* **"Mutations perturbing the water cavity surrounding the Mn_4CaO_5 cluster have a strong effect on the water oxidation mechanism of Photosystem II"**

15:30-16:00

Miwa Sugiura (*Ehime University, Ehime, Japan*) **"Molecular structures relating regulation of electron transfer in Photosystem II"**

16:00-16:30

Tatsuya Tomo (*Tokyo University of Sciences, Tokyo, Japan*) **"Redox regulation of photosystem II with a focus on newly chlorophyll"**

16:30 -16:50 (20 min) ***Coffee break***

Chairpersons: *Imre Vass (Hungary), Johannes Messinger (Sweden); Julian Eaton-Rye (New Zeland)*

16:50-17:20

Jorg Pieper (*University of Tartu, Tartu, Estonia*) **"Low-energy level structure of light-harvesting complex II revisited: a hole-burning and temperature-dependent absorption study"**

17:20-17:50

Kentaro Ifuku (*Graduate School of Biostudies, Kyoto University, Kyoto, Japan*) **"Interaction and function of the membrane-extrinsic proteins of photosystem II in higher plants"**

17:50-18:20

Mehdi Najafpour *(Department of Chemistry, and Center of Climate Change and Global Warming, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran*) **"Proposed mechanisms for water oxidation: From natural Mn-Ca cluster to nano-sized Mn oxides"**

18:20 -18:50

Suleyman I. Allakhverdiev *(Controlled Photobiosynthesis Laboratory, Institute of Plant Physiology RAS, Moscow; Institute of Basic Biological Problems, RAS Pushchino, Russia)* **"Comparison of nano-sized Mn-Ca oxides with Mn-Ca cluster of photosystem II in water oxidation"**

18:00-19:00 (60 min) ***Poster viewing/discussion: Sections 1-4***

Chairpersons: *Julian Eaton-Rye (New Zealand); Franz-Josef Schmitt (Germany); Roberta Croce (The Nederlands); Kentaro Ifuku (Japan); Harvey Hou (USA)*

19:00 - ***Dinner***

June 7 ***– Lectures and Tours***

Tour - ***Institute of Crop Husbandry, Ministry of Agriculture of the Republic of Azerbaijan***

Lectures:
Chairpersons: *Fumihiko Sato (Japan), Shinji Masuda (Japan)*

8:30-9:00

Vladimir A. Shuvalov (*Institute of Basic Biological Problems, RAS, Pushchino, Russia*) **"Light energy convertor for biosphere"**

9:00-9:30

Norio Murata (*National Institute for Basic Biology, Okazaki, Japan*) **"Gene-engineered improvement of photosystem II performance under abiotic stress"**

9:30-10:00

Govindjee (*University of Illinois, Illinois, USA "***How plants and algae protect themselves against excess light?"**

10:00-10:15 (15 min) ***Coffee break***

Chairpersons**:** Hiroshi Ishikita (Japan), Julian Eaton-Rye (New Zeland), Harvey Hou (USA)

10:15-10:45

Imre Vass (*BRC, Institute of Plant Physiology, HAS, Szeged, Hungary*) **"Modeling of Photosystem II electron transport processes"**

10:45-11:15

Vyacheslav Klimov (*Institute of Basic Biological Problems, Pushchino, Russia*) "**Flash-induced uptake of molecular oxygen on the donor side of photosystem II after a complete removal of manganese"**

11:15-11:45

Julian Eaton-Rye (*University of Otago, Dunedin, New Zealand)* **"Insights into Photosystem II auxiliary protein mutants from whole genome sequencing and protein structure comparisons"**

11:45-12:15

Agu Laisk (*Tartu Ülikooli Molekulaar-ja Rakubioloogia Instituut, Tartu, Estonia***) "Comparison of chlorophyll fluorescence and O_2 evolution in millisecond time shows significant charge recombination or cycling in PSII in leaves"**

12:15-12:45

Harvey Hou *(Department of Physical Sciences, Alabama State University, Alabama, USA)* **"Solar water splitting with Mn/Iron oxide system mimicking Photosystem II"**

12:45-14:00 (75 min) ***Lunch***

Chairpersons: *Nathan Nelson (Israel); Govindjee (USA)*

14:00-14:30

Andrey B. Rubin (*Faculty of Biology, Moscow State University, Moscow, Russia)* **"Mechanisms of regulation of the electron transfer in the primary processes of photosynthesis"**

14:30-15:00

Gyözö Garab (*BRC, Institute of Plant Physiology, HAS, Szeged, Hungary*) "**Nature, mechanism and physiological significance of thylakoid ultrastructural reorganizations in cyanobacteria, algal cells and leaves as revealed by small angle neutron scattering"**

15:00-15:30

Roberta Croce *(Department of Physics and Astronomy, Faculty of Sciences VU University Amsterdam, Amsterdam, The Netherlands)* **"Structural and functional changes in PSI and PSII supercomplexes during state transitions"**

15:30-16:00 (30 min) ***Coffee break***

Chairpersons: *Jean-David Rochaix (Switzerland); Vyacheslav Klimov (Russia); Thomas Friedrich (Germany)*

16:00-16:30

Nathan Nelson (*Tel Aviv University, Tel Aviv, Israel)* **"Crystal structures of *Synechocystis* wild-type and mutants Photosystem I"**

16:30-17:00

Alexey Yu. Semenov (*A.N. Belozersky Institute of Physical-Chemical Biology, Moscow State University, Moscow, Russia)* **"Primary electron transfer reactions in Photosystem I complexes"**

17:00-17:30

Alexander N. Tikhonov (*Department of Biophysics, Faculty of Physics, Moscow State University, Moscow, Russia)* **"pH-Dependent regulation of electron transport and ATP synthesis in chloroplasts"**

17:30-18:00

Eldar Kasumov (*Research and Production Centre «KORVET», Moscow, Russia)* **"A mechano-chemiosmotic model of coupling in the photo- and oxidative phosphorylation"**

18:00-19:30

Alexander Ruban *(Department of Molecular Biology and Biotechnology, University of Sheffield, Sheffield, UK)* **"Design and dynamics of light harvesting antenna of Photosystem II"**

19:30-20:00 (30 min) Poster viewing/discussion: Sections 5-9

Chairpersons: *Tatsuya Tomo (Japan); Ernest-Walter Knapp (Germany); Bruce Osborne (Ireland)*

20:00 - ***Dinner***

June 8 ***– Lectures, Special Events and Tours***

Lectures:

Chairpersons: *Vladimir Shuvalov (Russia); Roberta Croce (The Netherlands); Mario De Tullio (Italy)*

8:30-9:00

Barry D. Bruce (*Sustainable Energy and Education Research Center (SEERC), University of Tennessee, Tennessee, USA*) **"Artificial Photosynthesis for Hydrogen and Carbon-based Solar Fuels"**

9:00-9:30

Arvi Freiberg (*Institute of Physics, University of Tartu, Tartu, Estonia*) "**Bacterial photosynthesis studies from single molecules to single cells"**

9:30-10:00

Rienk van Grondelle (*VU University Amsterdam, Amsterdam, The Netherlands)* **"How nature harvests solar light"**

10:00-10:30

Thomas Friedrich (*Technical University of Berlin, Berlin, Germany*) **"Wide-field FLIM / FRAP microscopy for the study of fluorescence emission in cyanobacteria"**
(Authors: M. Vitali, C. Junghans, F.-J. Schmitt, H.-J. Eckert, T. Friedrich)

10:30-11:00 (30 min) ***Coffee break***

Chairpersons: *Thomas Friedrich (Germany), Bruce Osborne (Ireland); Győző Garab (Hungary)*

11:00-11:30

Franz-Josef Schmitt (*Technical University of Berlin, Berlin, Germany*) "**Multiparameter imaging of specially designed fluorescence proteins for the monitoring of the chemical environment in living cells"**

11:30-12:00

Seiji Akimoto (*Molecular Photoscience Research Center, Kobe University,Kobe, Japan*) **“Excitation relaxation dynamics and energy transfer in fucoxanthin-chlorophyll a/c-protein complexes"**

12:00-12:30

Hazem M. Kalaji (*Warsaw University of Life Science, Warsaw, Poland*) “**Performing an "electrocardiogram" of PSII by the use of the chlorophyll fluorescence measurements”**

12:30-12:50; ***To take photos, all together***

12:50- 14:00 (70 min) ***Lunch***

Chairpersons: *Alexander Tikhonov (Russia); Alexey Semenov (Russia); Agu Laisk (Estonia)*

14:00-14:40

Bruce Osborne *(School of Biology and Environmental Science, University College Dublin, Dublin, Ireland)* **“The importance of understanding photosynthesis at the ecosystem scale”**

14:40-15:15

Fumihiko Sato *(Graduate School of Biostudies, Kyoto University, Sakyo-ku, Kyoto, Japan)* **“Energy use and loss of absorbed light at PSII in field-grown rice”**

15:15-15:50

Mario De Tullio *(Department of Biology; University of Bari; Bari, Italy*) **“Ascorbate oxidase and photosynthesis: the unexpected connection”**

15:50-16:25

Vidadi Yusibov (*Fraunhofer USA Center for Molecular Biotechnology, Delaware, USA; Institute of Botany, Azerbaijan National Academy of Sciences, Baku, Azerbaijan)* **“Plant Biotechnology: It is not all about agriculture”**

16:25-17:00 (35 min) ***Coffee break***

17:00 - ***Special Events***

1) Young Talents ***(4 awards/prizes)***

2) Best posters ***(4 awards/prizes)***

Committee: Jim Barber (UK); Govindjee (USA); Mario De Tullio (Italy); Eva-Mari Aro (Finland); Gyözö Garab (Hungary); Suleyman Allakhverdiev (Russia); Tatsuya Tomo (Japan)

19:00 – ***Banquet***

June 9 (5th day) ***(Lectures, Closing ceremony and Tours)***

Chairpersons: *Hideya Fukuzawa (Japan), Tohru Tsuchiya (Japan), Mario De Tullio (Italy)*

9:00-9:30

Jean-David Rochaix (*University of Geneva, Switzerland*) **"New insights into chloroplast function through conditional repression of essential chloroplast genes in *Chlamydomonas*"**

9:30-10:00

Aidyn Mouradov *(RMIT University, Bundoora, Victoria, Australia)* **"Plant Biotechnology: Linking Research Curiosity with Product Development"**

10:00-10:30

Asaf Salamov *(DOE Joint Genome Institute, California, USA)* **"Comparative genome analysis of plant pathogenic *Dothideomycetes* fungi"**

10:30-11:00

Tarlan Mamedov (*Fraunhofer USA Center for Molecular Biotechnology, Delaware, USA; Institute of Botany, Azerbaijan National Academy of Sciences, Baku, Azerbaijan*) "**Discovery of endogenous mammalian-type sialylated N-glycans in photosynthetic green algae *Chlamydomonas reinhardtii*: the importance of glycoprotein sialylation for successful development of biopharmaceuticals"**

11:00-11:30 (30 min) ***Coffee break***

12:00 Closing ceremony

Jalal Aliyev (Azerbaijan), Jim Barber (UK), Eva-Mari Aro (Finland), T. Nejat Veziroglu (USA), Bruce Osborne (Ireland)

To take photos, all together

END and FREE TIME

June 10 **- Departure**

POSTER PROGRAMME

THURSDAY
June 06, 2013

18:00-19:00 (60 min) Poster viewing/discussion: Sections 1-4

Chairpersons: *Julian Eaton-Rye (New Zealand); Franz-Josef Schmitt (Germany); Roberta Croce (The Nederlands); Kentaro Ifuku (Japan); Harvey Hou (USA)*

PS 1. *Keisuke Saito, A. William Rutherford and Hiroshi Ishikita*
Mechanism of quinone reduction in photosystem II

PS 2. *Kostas Stamatakis and George C. Papageorgiou*
ΔpH-dependent non-photochemical quenching (QE) of photosystem II excitation in the freshwater *Cyanobacterium synechococcus* sp PCC 7942.

PS 3. *Irina Petrova, Vasiliy Kurashov, Andrey Zaspa, Alexei Semenov and Mahir Mamedov*
Vectorial charge transfer due to s-state transitions of the water-oxidizing complex in photoactivated APO-WOC-PS 2 core complexes

PS 4. *E.G. Maksimov, F-J. Schmitt, M. Dsvirin, E.A. Shirshin, I.V. Elanskaya, T. Friedrich and V.Z. Paschenko*
Non-photochemical quenching of fluorescence and energy transduction in phycobilisomes of *Synechocystis* sp. PCC6803

PS 5. *Alexander G. Ivanov, Ewa Miskiewicz, Stefan Falk and Norman P.A. Nuner*
Alternative electron transport pathways govern acclimation of cyanobacteria to changing environmental conditions

PS 6. *Ismayil S. Zulfugarov, Altanzaya Tovuu and Choon-Hwan Lee*
Activation of the cyclic electron flow around psi in rice plants lacking nonphotochemicl quenching

PS 7. *Kostas Stamatakis, Merope Tsimilli-Michael and George C. Papageorgiou*
On the question of the light-harvesting role of β-carotene in photosystem II and photosystem I core complexes

PS 8. *Kaichiro Endo, Naoki Mizusawa, Jian-Ren Shen, Koichi Kobayashi and Hajime Wada*
Effect of site-directed mutagenesis of amino-acid residues interacting with phosphatidylglycerol molecules on the function of photosystem II

PS 9. *Emine Dinc, Silvia Ramundo, Jean-David Rochaix and Roberta Croce*
Lifetimes of photosystem I and II proteins in the *Chlamydomonas reinhardtii* RR5 transformant under different growth light conditions

PS 10. *Jörg Pieper, Kamarniso Vrandecic, Margus Rätsep, Laura Wilk, Klaus-Dieter Irrgang and Werner Kühlbrandt*
Protein dynamics tunes energy levels for efficient light harvesting in photosynthesis

PS 11. *N.E. Belyaeva, F.-J. Schmitt, V.Z. Paschenko, G.Yu. Riznichenko, A.B. Rubin[1] and G. Renger[2]*
Model based analysis of transient fluorescence yield induced by actinic laser flashes on leaves and algae

PS 12. *Mohammad Mahdi Najafpour, Atefeh Nemati Moghaddam and Yousef Sakha*
A mathematical model for manganese oxide-coated clay as catalysts for water oxidation

PS 13. *Anastasia Petrova, Boris Trubitsin, Alexander Tikhonov and Alexey Semenov*
Interaction of methylviologen with electron acceptors of photosystem I

PS 14. *Daisuke Seo, Tomoya Asano and Takeshi Sakurai*
Role of the C-terminal extension region located on the isoalloxazine ring of FAD in *Bacillus subtils* ferredoxin-NADP$^+$oxidoreductase

PS 15. *Shahniyar Bayramov, Yashar Feyziyev, Novruz Guliyev and Francisco Javier Cejudo*
Changes in RUBISCO activase gene expression and polypeptide content in *Brachypodium distachyon*

PS 16. *Ateeq ur Rehman, Zsuzsanna Deák and Imre Vass*
Detection and characterization of superoxide production in isolated photosystem II membrane particles by oxygen uptake measurements

FRIDAY
June 07, 2013

19:30-20:00 (30 min) ***Poster viewing/discussion: Sections 5-9***

Chairpersons: *Tatsuya Tomo (Japan); Ernest-Walter Knapp (Germany); Bruce Osborne (Ireland)*

PS 17. *E.G. Maksimov, F-J. Schmitt, M.G. Strakhovskaya, D.A. Gvozdev, T. Friedrich, V.Z. Paschenko and A.B. Rubin*
Zinc phthalocyanines and quantum dots conjugates: the physical properties and photodynamic activity

PS 18. *Khuraman Khalilova, Hasan Babayev, Dariko Rasulova, Sima Qani-zade, Zumrud Abbasova, Elmira Zeynalova, Agha Shixiyev*
Effect of plant-derived substance to the activity of carbon metabolism and antioxidant enzymes under salinity stress condition

PS 19. *I.M. Huseynova, D.R. Aliyeva, J.A. Aliyev*
Subcellular localization and responses of superoxide dismutase isoforms in local wheat varieties subjected to continuous soil drought

PS 20. *K.H. Bayramova, S.Y. Suleymanov, I.M. Huseynova*
Activities of photosystem I and photosystem II of chloroplasts isolated from different plants under the ionizing radiation

PS 21. *Irada M. Huseynova, Nargiz R. Sultanova and Jalal A. Aliyev*
Histochemical evidence for generation of reactive oxygen species and antioxidant response to viral infections of vegetable crops

PS 22. *Karim G. Gasimov*
Cyclic-GMP phosphodiesterase and Ca^{2+} are involved in plant photosignal transduction processes

PS 23. *Irada M. Huseynova and Jalal A. Aliyev*
Functional marker assisted selection for drought tolerant wheat genotypes in Azerbaijan

PS 24. *Ioana Grigoras, Tatiana Timchenko, Ana Isabel Del Cueto Ginzo, Nargiz R. Sultanova, Alamdar Ch. Mamedov, Irada M. Huseinova, Jalal Aliyev, Javier Romero, Heinrich-Josef Vetten and Bruno Gronenborn*
Nanoviruses from sweden to azerbaijan: known and novel species in europe and their genetic relationship

PS 25. *I.M. Huseynova, F.B.Guliyeva, S.M. Rustamova and J.A. Aliyev*
Assessment of the leaf rust resistance gene *LR9* in selected wheat varieties of Azerbaijan by SSR markers

PS 26. *Atabay A. Jahangirov, Ali A. Jahangirov, Hamid N. Hamidov and Irada M. Huseynova*
Morphological characteristics of autumn bread wheat in rainfed sub-humid areas of Azerbaijan

PS 27. *M.Y.Nasrullayeva, D.R.Aliyeva, S.Y.Suleymanov and I.M.Huseynova*
Comparative study of drought stress resistance in two barley (*Hordeum vulgare* L.) varieties

PS 28. *Namik M. Rashydov*
Changes of metabolic pathways in mature seeds of the plants grown under adverse environmental conditions

PS 29. *Javanshir Talai, Jalala Bayramova, Atif Zamanov and Tofig Allahverdiyev*
Root system features of new wheat genotypes differing in architectonics and photosynthesis indexes under drought

PS 30. *Kamran Yusifli, Amina Abdulazimova, Nurmemmed Mustafayev, Lala Gasimli, Gunel Hasanova and Ilham Shahmuradov*
Intracelluar horizontal gene transfer in plants

PS 31. *Hasan Babayev, Ulduza Mehvaliyeva, Minakhanym Aliyeva, Fazila Khasumova, Yashar Feyziyev and Novruz Guliyev*
Localization, some physical-chemical and kinetic characteristics of NADP-malate dehidrogenase in amaranth leaves under drought

PS 32. *I.V. Azizov, E.N. Shamilov, A.S. Abdullayev, V.E. Shamilli and Q.M. Mammadov*
The effect of ionizing radiation on the content of chlorophylls and carotenoids in wheat seedlings in the presence of an iron complex

PS 33. *Novruz Guliyev, Ulduza Mehvaliyeva, Hasan Babayev, Shahniyar Bayramov, Minakhanym Aliyeva and Yashar Feyziyev*
Localization, physical, chemical and kinetic properties of NADP-malate dehydrogenase izoforms in wheat leaves under drought

PS 34. *Kazuyuki Watabe, Mamoru Mimuro and Tohru Tsuchiya*
Development of highly-frequent in vivo transposon mutagenesis system for *Synechocystis* sp. PCC 6803

PS 35. *Zarifa Suleymanova and Alamdar Mamedov*
Application of rapd technique for screening of salt tolerance of some wheat genotypes

PS 36. *Mie Araki, Mamoru Mimuro and Tohru Tsuchiya*
Chlorophyll *b* biosynthesis in a genetically engineered *Gloeobacter violaceus* PCC 7421

PS 37. *Stefan Koller and Wolfgang Brüggemann*
Mediterranean oaks – an option for drought-prone oak stands in southern Germany under climate change scenarios?

PS 38. *Tofig Allahverdiyev and Atif Zamanov*
Impact of drought on some physiological parameters of field grown bread wheat genotypes

PS 39. *Sonal Mathur and Anjana Jajoo*
Alterations of PS II heterogeneity under the influence of osmotic and ionic stress

PS 40. *Rupal Singh-Tomar and Anjana Jajoo*
Characterization of photosystem II heterogeneity in response to polycyclic aromatic hydrocarbon (fluoranthene) in wheat

PS 41. *E.G.Maksimov, F-J.Schmitt, G.V.Tsoraev, A.V.Ryabova, T.Friedrich and V.Z.Paschenko*
Desiccation-induced fluorescence quenching in the lichen *Peltigera aphthosa*

PS 42. *Nina Djapic*
Light insufficiency induces chlorophyll catabolism in *Parrotia persica* green leaves

PS 43. *Zohre Muslimova, Ibrahim Azizov and Mahir Faracov*
Effect of ionizing radiations on pigment content and photochemical activity of chloroplasts in maize (*Zea mays* L.) Leaves at participation of humin complexes

PS 44. *Nabil I. Elsheery, Bukhard Wilske and Cao Kunfang*
Photosynthesis under chilly temperature on mango trees

PS 45. *Mariko MiyachI, Yoshinori Yamanoi, Nao Terasaki, Yasunori Inoue and Hiroshi Nishihara*
Photoelectrochemical properties of photosystem I modified with viologen derivatives

PS 46. *Masanori Satoh, Yoshihito Tokaji, Hiroyuki Ohta and Shinji Masuda*
Isolation and characterization of arabidopsis mutants to elucidate photo-oxidative stress response through oxylipin signaling

PS 47. *Mikko Tikkanen and Eva-Mari Aro*
Integrative regulatory network of thylakoid energy transduction

PS 48. *Kyoko Okuzono, Mariko Miyachi, Yoshinori Yamanoi, Tatsuya Tomo and Hiroshi Nishihara*
PS I reconstitution using a molecular wire equipped with a platinum nanoparticle

PS 49. *Evangelos P. Favvas, Kostas Stamatakis, Nikolaos Heliopoulos, Sergios K. Papageorgiou and Nick K. Kanellopoulos*
Enhancement of photosynthetic hydrogen productionusing polymeric hydrophobic hollow fiber membranes

PS 50. *Krzysztof Klamkowski, Waldemar Treder, Anna Tryngiel-Gać, Iwona Sowik and Agnieszka Masny*
Evaluation of drought tolerance of new strawberry cultivars of Polish origin

PS 51. *Hassan Khanzade, Josef Jahani, Kamal Shahbazi and Asghar Mehreban*
Evaluation of advanced lines of bread wheat and groping based on drought indices

PS 52. *Marja Hakala-Yatkin, Heta Mattila, Taras Antal, Vesa Havurinne, Taina Tyystjärvi, Esa Tyystjärvi*
Redox state of the plastoquinone pool regulates ndh-dependent cyclic electron flow in higher plants

PS 53. *Éva Kiss, Péter B. Kós, Min Chen and Imre Vass*
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